

## CHAPTER 2 OPERATING INSTRUCTIONS

### Section I. PREPARATION FOR OPERATION

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#### 2-1. VEHICLE PREPARATION INSTRUCTIONS.

- a. Position Light Armored Vehicle (LAV) on level ground 1000 m from a target panel containing a retro reflector unit.
- b. Perform pre-mission checks IAW TM 08594A-10/1A. An operational vehicle is required for PGS to operate properly.
- c. Adjust contrast and brightness of thermal picture in preparation for TBOS DIM36TH alignment.

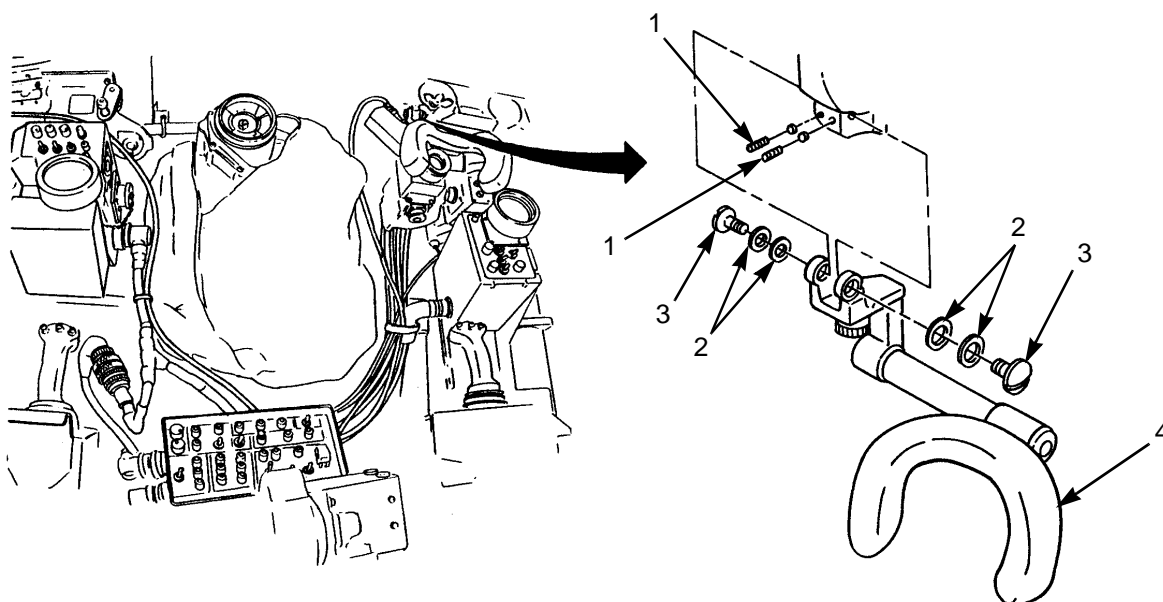
**WARNING**

- **Vehicle MASTER SWITCH and turret power must be off before connecting or disconnecting system components/cables. Failure to follow this warning may cause turret or 25 mm gun movement, resulting in injury or death to personnel.**
  - **TURRET DRIVE LOCK must be in locked position before connecting or disconnecting system components/cables. Failure to follow this warning may result in injury or death to personnel.**
- d. Confirm boresight status (TM 08594A-10/1A).
  - e. Turn vehicle MASTER SWITCH OFF (see TM 08594A-10/2). Set TURRET DRIVE LOCK to LOCKED position and turn turret power OFF (see TM 08594A-10/1A).

## 2-1. VEHICLE PREPARATION INSTRUCTIONS (Con't).

f. Using tool assembly in PGS storage case, loosen but do not remove two setscrews (1) on commander's daysight brow pad.

g. Using tool assembly in PGS storage case, remove two screws (3), four washers (2), and commander's daysight brow pad (4).



h. Remove lid on HE ammunition box (see TM 08594A-10/1A).

i. Remove HE ammunition feed chute (see TM 08594A-10/1A).

j. Ensure AP and HE feed shaft stop knobs on 25 mm gun are IN (see TM 08594A-10/1A).

k. Remove binocular case storage bracket on turret exterior, if equipped (see TM 08594A-10/1A).

## 2-2. UNPACKING AND PACKING COMPONENTS.

a. The PGS components and mounting brackets are assembled and W2, W3, W4, W5, W6, W9, and W10 cables attached to provide ready-to-install assemblies. The assemblies are packed in two storage cases. Each case is designed to store specific component units and mounting brackets as indicated by shaped cutouts in the foam cushioning.

b. An illustrated components list is found on the inside of each storage case lid. Use this illustrated list as a guide when unpacking and packing PGS.

c. An illustrated components list for each storage case is also found in Appendix E.

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## **2-3. PRELIMINARY INSPECTION INSTRUCTIONS.**

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- a. Perform Before operation Operator/Crew Preventive Maintenance Checks and Services (PMCS) (see Chapter 3, Section I).
- b. Inspect all vehicle connectors for dirt and damage prior to installing PGS components.

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## **2-4. INSTALLATION OF EXTERIOR COMPONENTS AND CABLES.**

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**WARNING**

- Vehicle **MASTER SWITCH** and turret power must be **OFF** before connecting or disconnecting system components/cables. Failure to follow this warning may cause turret or 25 mm gun movement, resulting in injury or death to personnel.
- **TURRET DRIVE LOCK** must be in locked position before connecting or disconnecting system components/cables. Failure to follow this warning may result in injury or death to personnel.
- Ensure cables and components are properly installed. Improper installation may cause damage to equipment or injury to personnel.

**CAUTION**

Prior to installation, inspect all cable connectors for damage, bent pins, and foreign objects. Failure to follow this caution may result in damage to vehicle or equipment.

**NOTE**

Adjustments to the vehicle loading plan may be required to ensure that PGS components are properly installed.

## 2-4. INSTALLATION OF EXTERIOR COMPONENTS AND CABLES (Con't).

### a. Transceiver Assembly Installation.

#### CAUTION

Ensure that transceiver unit is properly **LOCKED** into mounting bracket by checking that transceiver unit locking handle is in raised position. Failure to perform this check may result in transceiver unit falling out of mounting bracket and becoming damaged.

(1) Unlock locking handle (5). Slide transceiver assembly (2) over end of 25 mm gun barrel (6) and position on top of rotor extension (3).

(2) Position mounting bracket with transceiver unit at 12 o'clock. Push locking handle (5) up to locked position. Secure transceiver assembly (2) with strap and clamp (4) wrapped around rotor extension (3). Adjust strap with clamp.

(3) Unlock locking handle (1) and rotate transceiver unit (8) until laser lens (7) is at 12 o'clock.

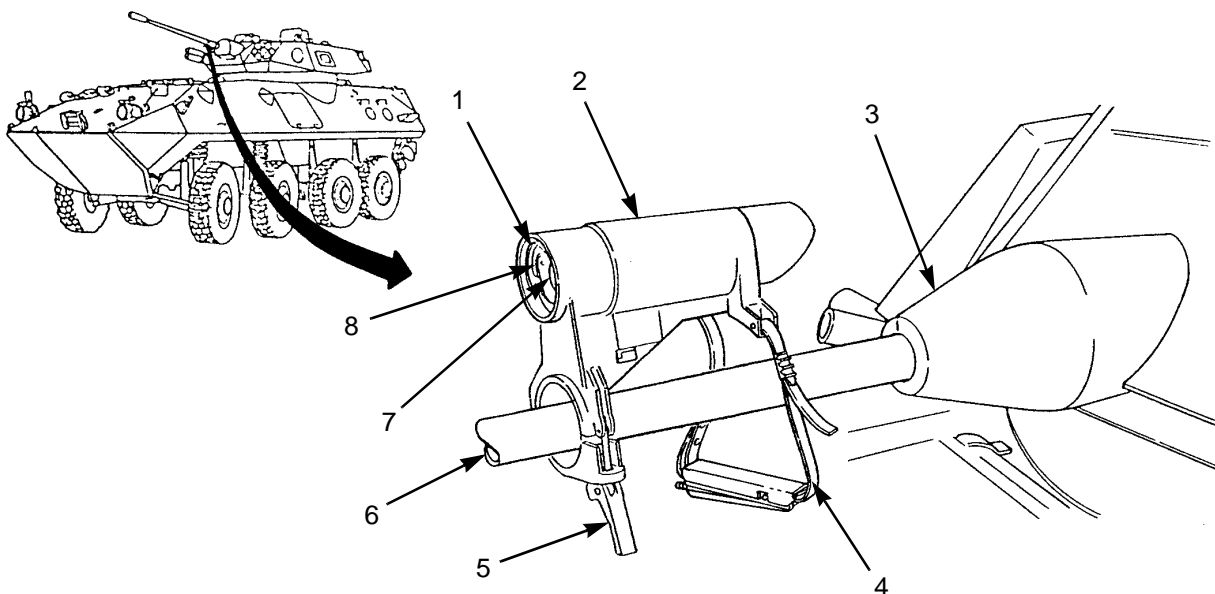
#### CAUTION

Ensure that transceiver unit is properly **LOCKED** into mounting bracket by checking that transceiver unit locking handle is in raised position. Failure to perform this check may result in transceiver unit falling out of mounting bracket and becoming damaged.

#### NOTE

Transceiver unit is properly installed when locking handle in locked position is flush with mounting bracket.

(4) Push locking handle (1) up to locked position.



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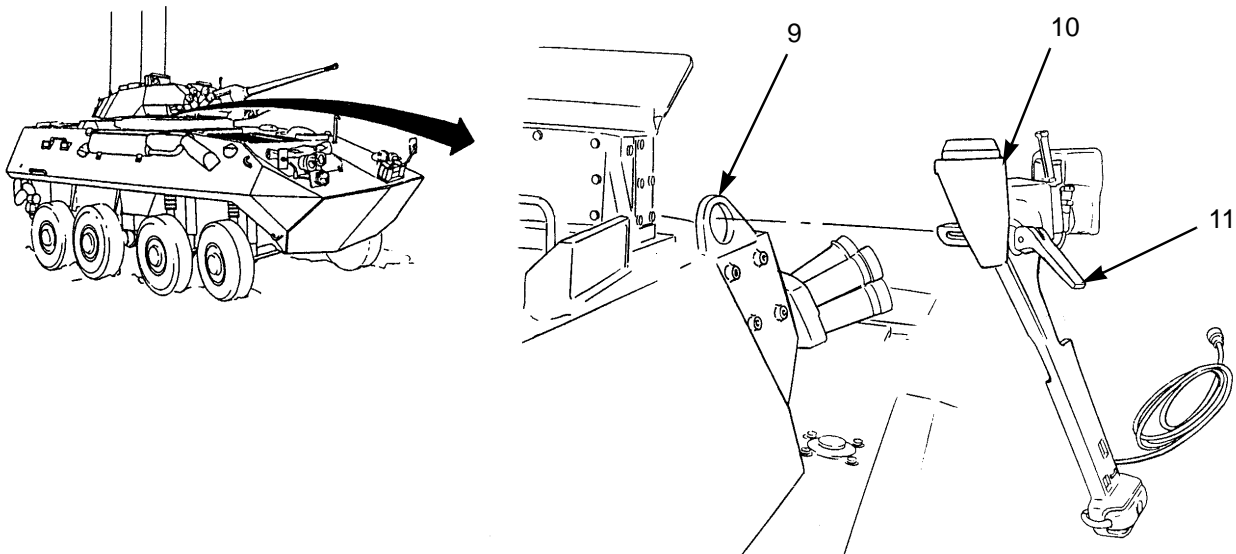
**2-4. INSTALLATION OF EXTERIOR COMPONENTS AND CABLES (Con't).**

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**b. Retro Detector/Hull Defilade Detector Assembly Installation (Right- and Left-Front).****NOTE**

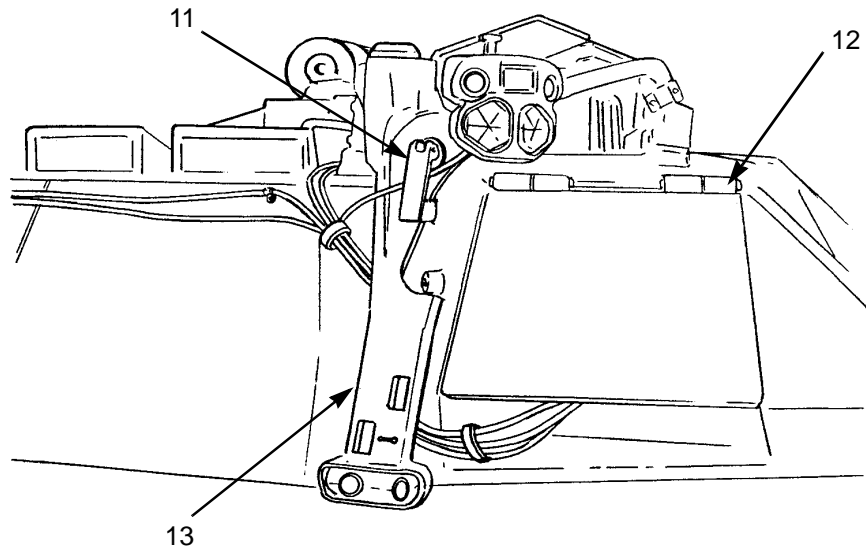
- Right- and left-front retro detector/hull defilade detector assemblies are installed the same way. Right-front retro detector/hull defilade detector assembly is illustrated. Perform this procedure for both assemblies.
- Right-front retro detector/hull defilade detector assembly bracket also mounts the RSI antenna.
- Left-front bracket should be mounted so forward edge of bracket is parallel to turret weld.

(1) Lift locking handle (11) and position right-front retro detector/hull defilade detector assembly (10) on turret lifting eye (9).



## 2-4. INSTALLATION OF EXTERIOR COMPONENTS AND CABLES (Con't).

(2) Ensure forward edge of bracket (13) is parallel with rotor shield (12) and push locking handle (11) down to locked position.

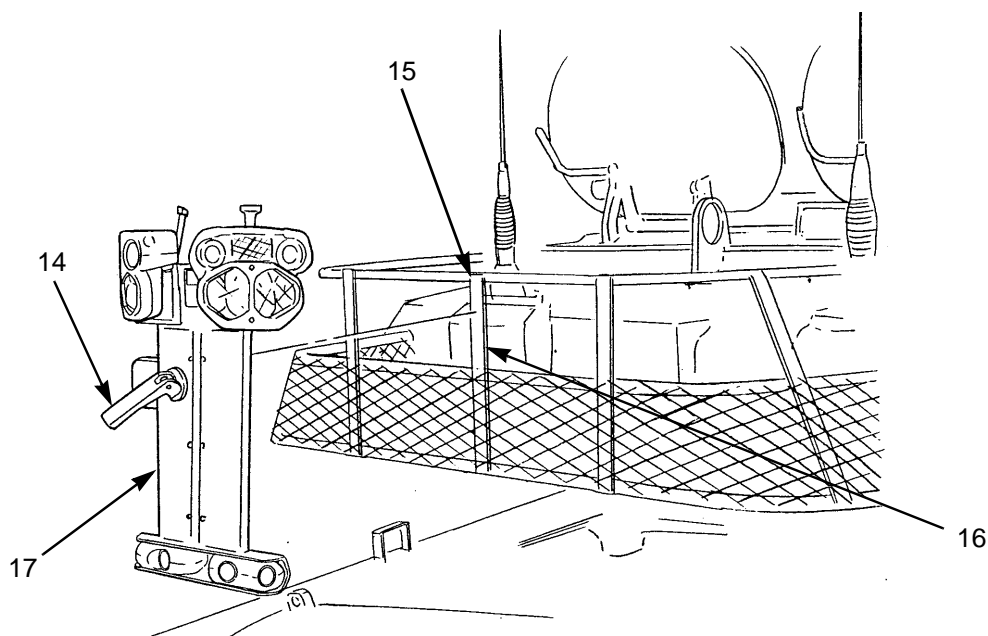


### c. Rear Retro Detector/Hull Defilade Detector Assembly Installation.

(1) Lift locking handle (14) and position rear retro detector/hull defilade detector assembly (17) on outside and left of center strut (16) on bustle rack (15).

(2) Slide assembly (17) to right until contact is made between assembly and left side of center strut (16).

(3) Push locking handle (14) down to locked position.



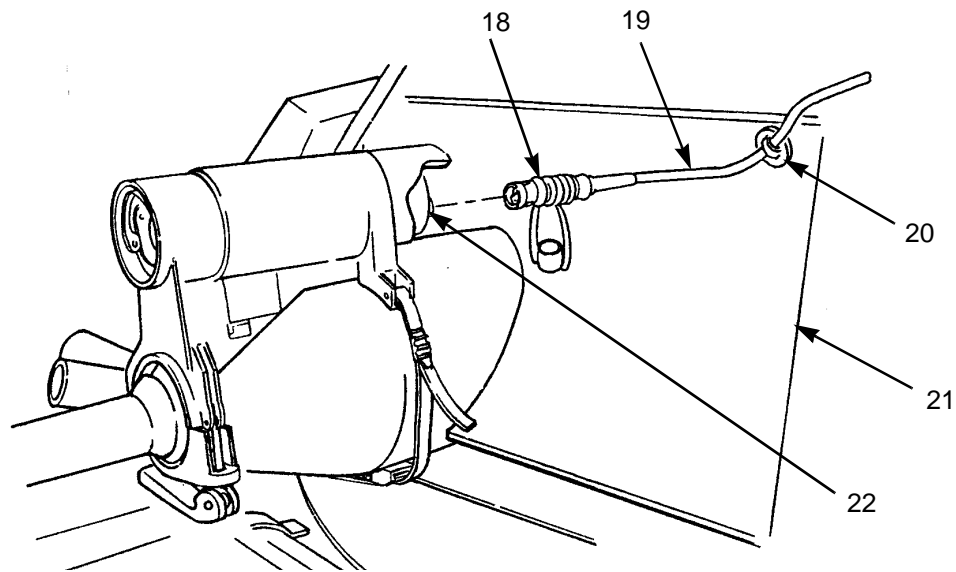
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**2-4. INSTALLATION OF EXTERIOR COMPONENTS AND CABLES (Con't).**

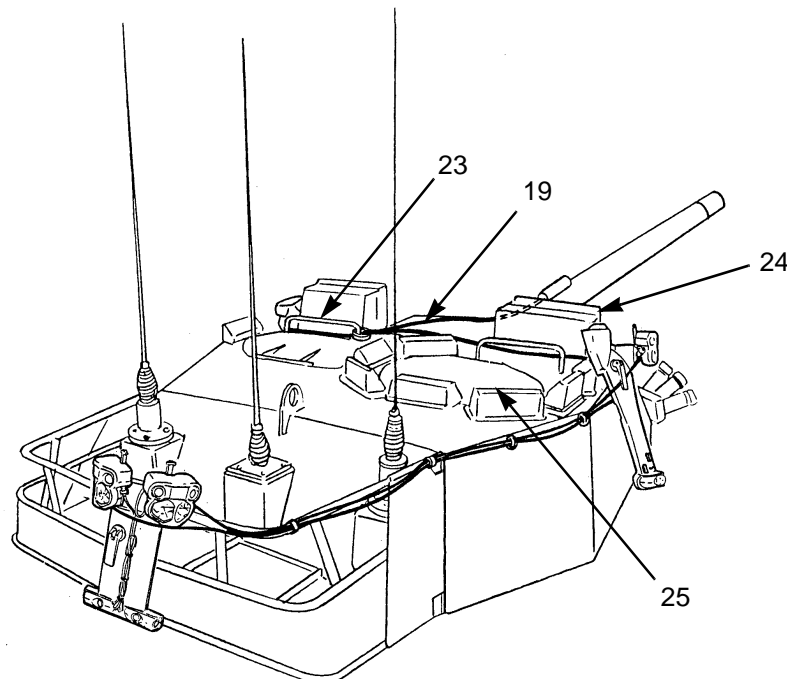
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**d. W1 Cable Installation.**

- (1) Connect W1 cable connector J2 (18) to transceiver unit rear connector J2 (22).
- (2) Secure W1 cable (19) to upper left corner of gun ballistic shield (21) with magnet (20).



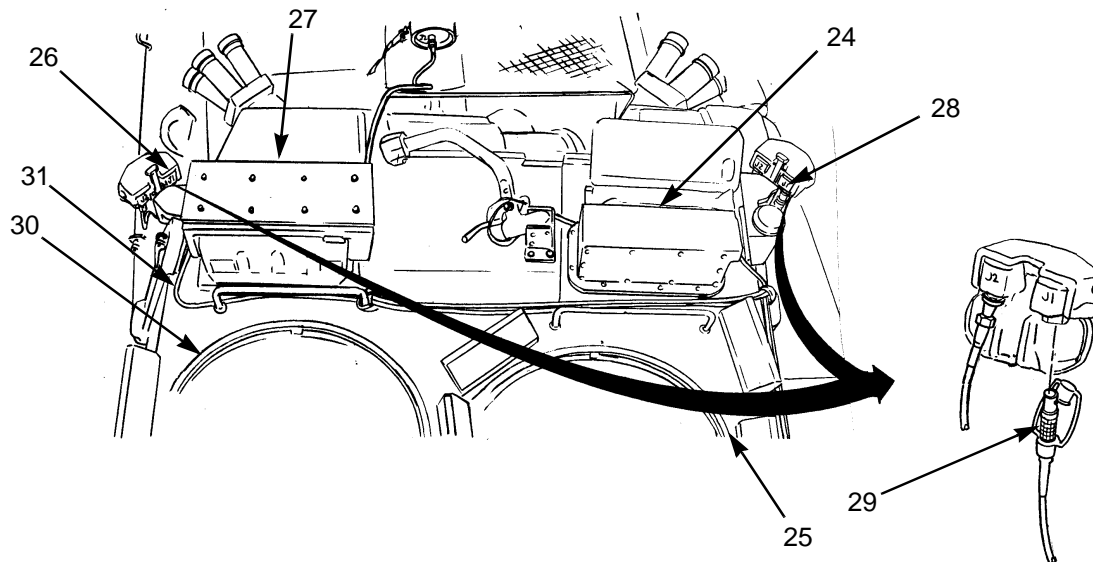
- (3) Route W1 cable (19) rearward to gunner's handhold (23) then to right side of turret between commander's hatch (25) and sight (24).



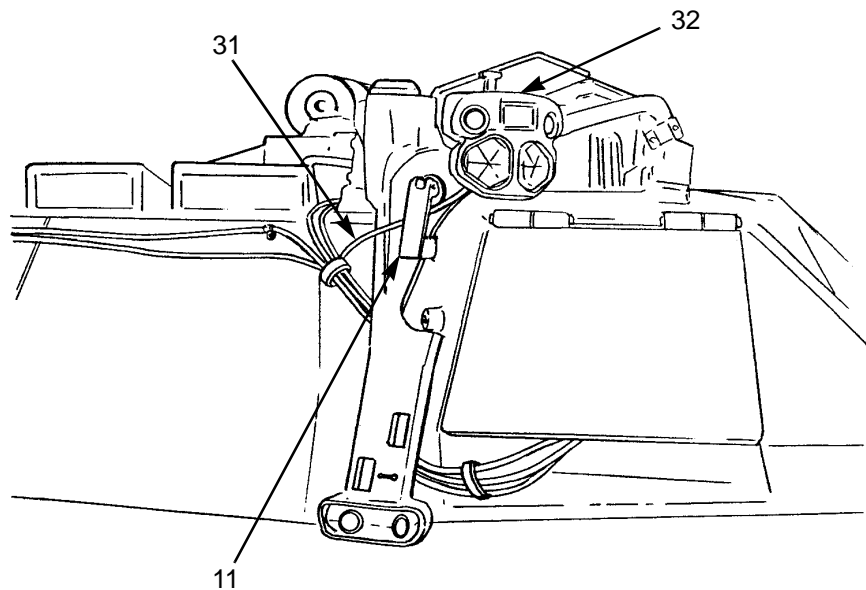
## 2-4. INSTALLATION OF EXTERIOR COMPONENTS AND CABLES (Con't).

### e. W7 Cable Installation.

- (1) Connect W7 cable connector J1 (29) to L/F RDU connector J1 (26).
- (2) Route W7 cable (31) across turret between gunner's hatch (30) and sight (27) and commander's hatch (25) and sight (24) to R/F RDU/HDDU assembly (32).



- (3) Route W7 cable (31) to R/F RDU (32) under R/F bracket locking handle (11).



- (4) Connect W7 cable connector J1 (29) to R/F RDU connector J1 (28).

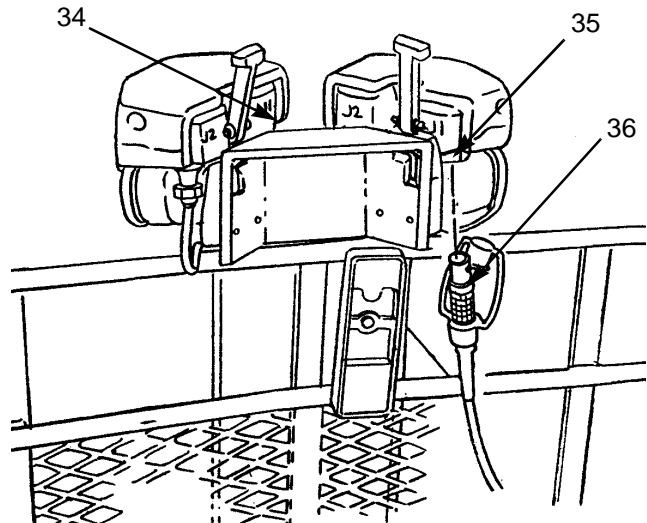


## 2-4. INSTALLATION OF EXTERIOR COMPONENTS AND CABLES (Con't).

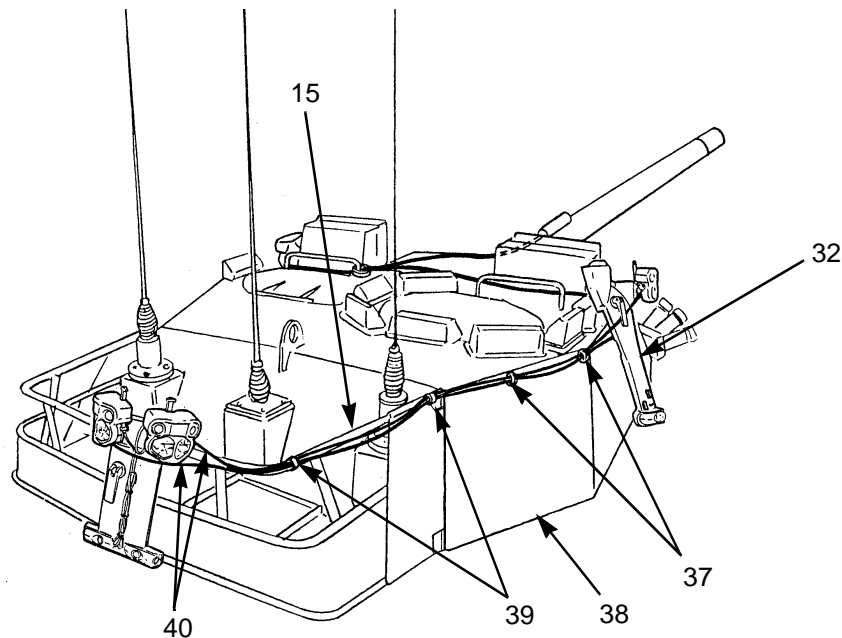
### f. W8 Cable Installation.

(1) Connect W8 cable connector J1 (36) to R/R RDU connector J1 (34).

(2) Connect W8 cable connector J1 (36) to L/R RDU connector J1 (35).



(3) Route W8 cable (40) forward along right inside of bustle rack (15) and right side of turret (38) to R/F RDU/HDDU assembly (32) securing W8 cable to bustle rack with velcro straps (39) and to turret with magnets (37).



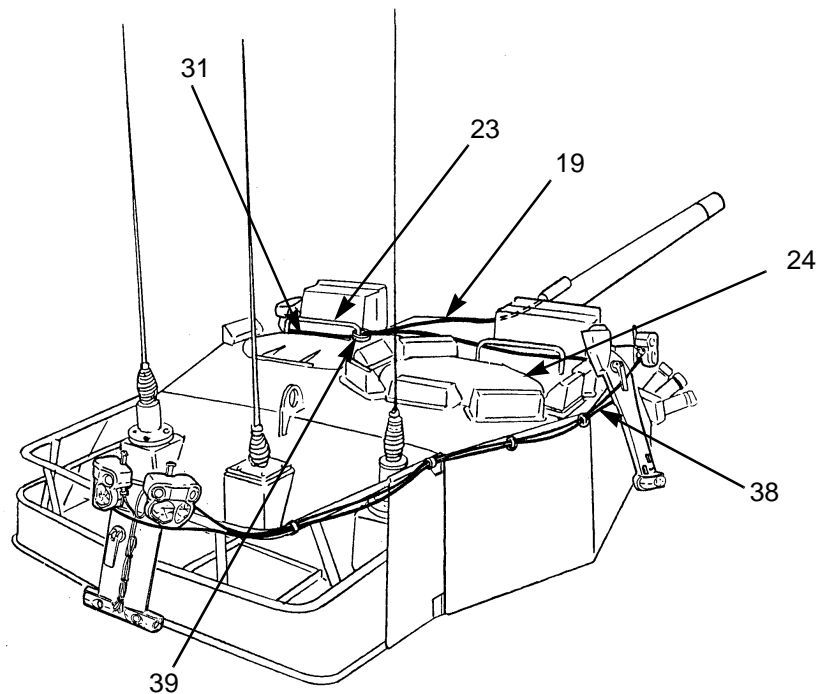
## 2-4. INSTALLATION OF EXTERIOR COMPONENTS AND CABLES (Con't).

### g. Fastening of Cables.

#### CAUTION

**If cables are not properly routed and fastened with velcro straps and magnets, they may become snagged and damaged when vehicle is operated.**

- (1) Fasten W1 cable (19) and W7 cable (31) to gunner's hand hold (23) with velcro strap (39).

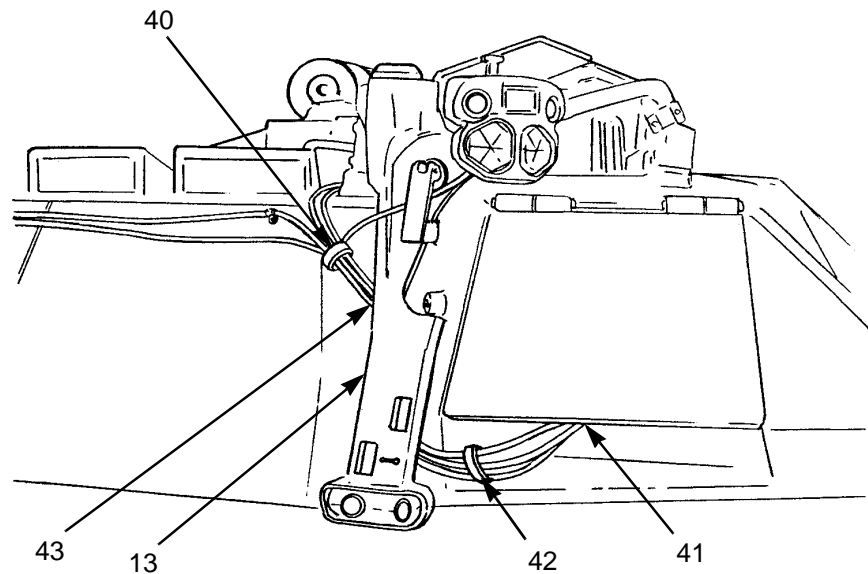


- (2) Fasten W1 cable (19), W7 cable (31), and W8 cable (38) together at right side of commander's sight (24) with velcro strap (40).
- (3) Unlock but do not remove R/F RDU/HDDU assembly bracket (13).
- (4) Position cables in slot (43) provided on bracket (13).
- (5) Lock bracket (13) ensuring not to pinch cables in slot (43).
- (6) Feed remainder of cables to interior of turret through ammunition ejection port (41).
- (7) Fasten cable bundle with velcro strap (42) between R/F bracket (13) and ammunition ejection port (41).
- (8) Install binocular case on turret exterior, if removed (see TM 08594A-10/1A).

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**2-4. INSTALLATION OF EXTERIOR COMPONENTS AND CABLES (Con't).**

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**2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES.**

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**WARNING**

- **TURRET DRIVE LOCK** must be in locked position before connecting or disconnecting system component/cables. Failure to follow this warning may result in injury or death to personnel.
- **Vehicle MASTER SWITCH** and turret power must be **OFF** before connecting or disconnecting system components/cables. Failure to follow this warning may cause turret or 25 mm gun movement, resulting in injury or death to personnel.
- Ensure cables and components are properly installed. Improper installation can cause damage to equipment or injury to personnel.

**CAUTION**

Prior to installation, inspect all cable connectors for damage, bent pins, and foreign objects. Failure to follow this caution may result in damage to vehicle or equipment.

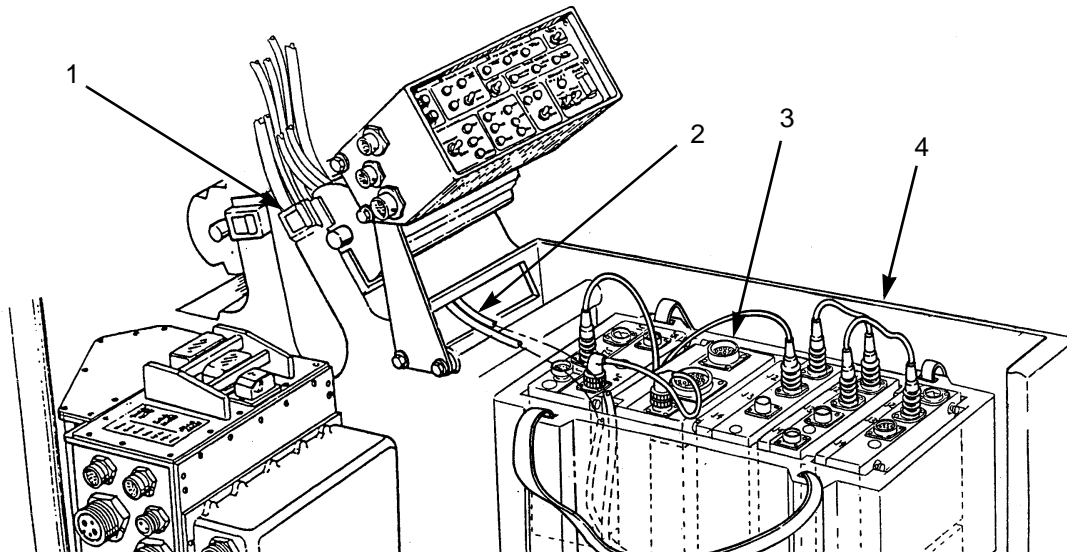
**NOTE**

- During cable installation, disconnect permanently attached vehicle interface assembly cables as required to ease installation of other cables.
- Adjustments to the vehicle loading plan may be required to ensure that PGS components are properly installed.

## 2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).

### a. Vehicle Interface Assembly.

- (1) Install vehicle interface assembly (3) into HE ammunition box (4) with beveled edge of vehicle interface assembly toward rear.
- (2) Feed W9 and W10 cables (2) out of HE ammunition box (4) through ammunition feed port (1).

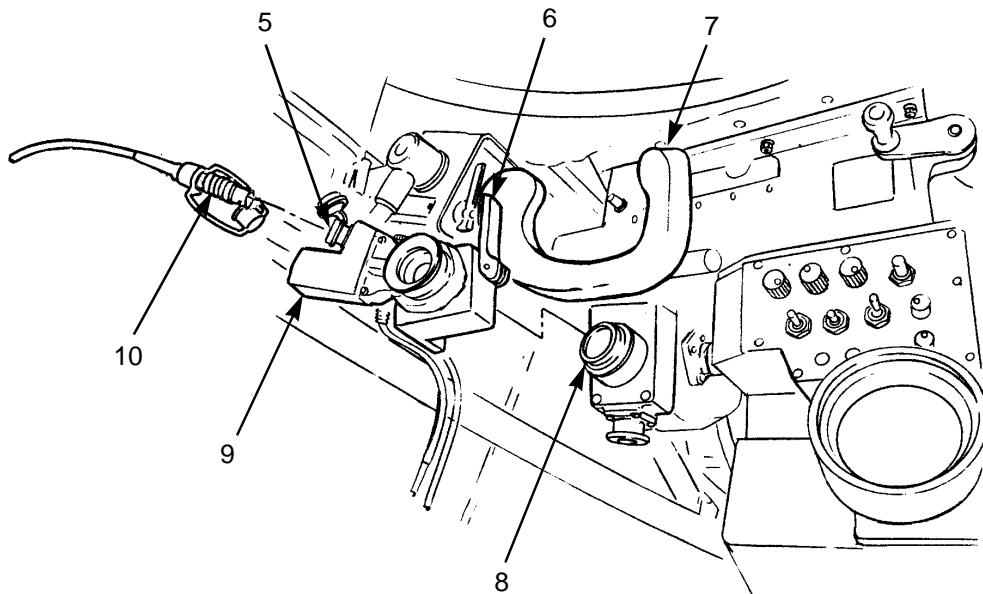


### b. TBOS Gunner's Eyepiece Unit and W9 Cable Installation.

#### NOTE

If your vehicle sights are equipped with smaller diopter rings, install TBOS eyepiece adapter first.

- (1) Raise gunner's browpad (7).
- (2) Connect W9 cable connector J1 (10) to TBOS gunner's eyepiece unit connector J1 (5).



## 2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).

- (3) Adjust focus on gunner's daysight (8).
- (4) Lift locking lever (6) and position TBOS gunner's eyepiece unit (9) with connector J1 (5) on left side of gunner's daysight (8).
- (5) Push locking lever (6) down to locked position.
- (6) Lower gunner's browpad (7).
- c. **TBOS Commander's Eyepiece Unit, W10 Cable, and Browpad Installation.**

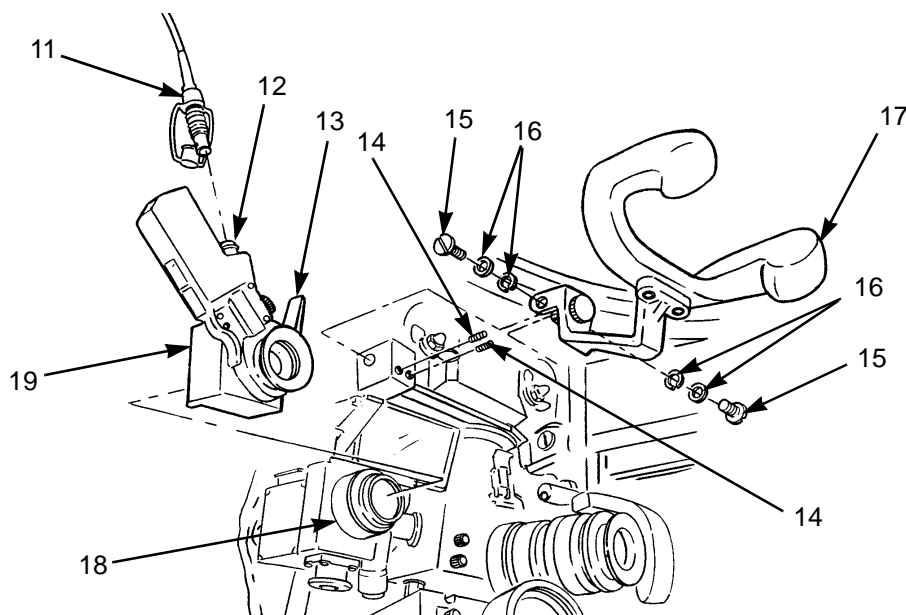
### WARNING

**DO NOT use brow pad if foam is damaged. Failure to follow this warning may result in injury or blindness to personnel.**

### NOTE

**If your vehicle is equipped with smaller diopter rings, install TBOS eyepiece adapter first.**

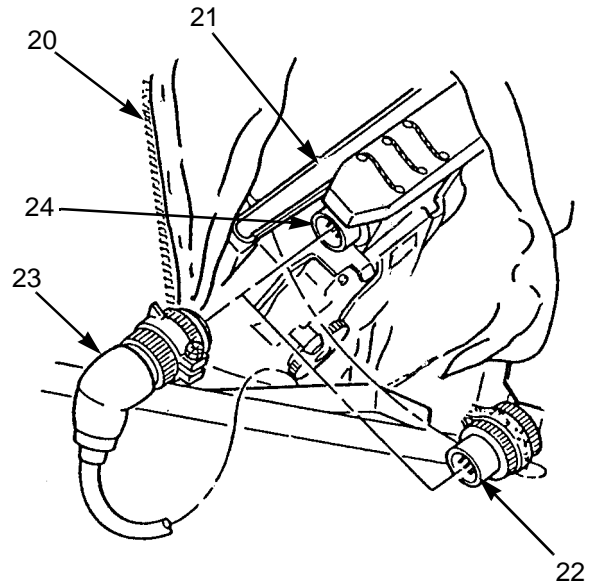
- (1) Using tool assembly in PGS storage case, install replacement brow pad (17) and secure with two screws (15) and four washers (16).
- (2) Using tool assembly in PGS storage case, tighten two setscrews (14).
- (3) Connect W10 cable connector J1 (11) to TBOS commander's eyepiece unit connector J1 (12).
- (4) Adjust focus on commander's daysight (18).
- (5) Lift locking handle (13) and position TBOS commander's eyepiece unit (19) with connector J1 (12) on left onto commander's daysight (18).
- (6) Push locking handle (13) down to locked position.



## 2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).

### d. Shorting Plug Installation.

- (1) Unzip weapons enclosure bag (20).
- (2) Press feeder handle latch (21) and pull feeder handle to the up and locked position.
- (3) Disconnect cable (23) from 25 mm gun power connector (24).
- (4) Connect shorting plug (22) to connector (23).
- (5) Push feeder handle latch (21) to the down position.



### **CAUTION**

**If cable is not placed properly it may be damaged by gun movement.**

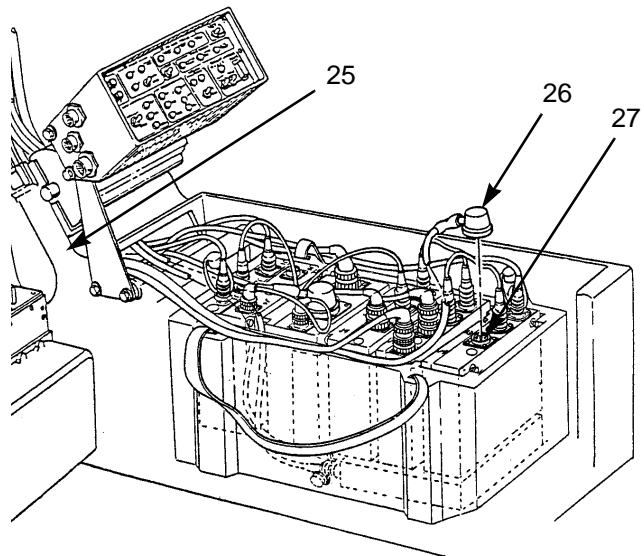
- (6) Place cable (23) beneath gun, toward front, so that cable cannot be damaged by gun movement.
- (7) Zip weapons enclosure bag (20).

### e. W11 Cable Installation.

### NOTE

**Installation/removal of CDA, PDA, and DIM36TH vehicle and PGS cables must be performed or supervised by trained personnel.**

- (1) Feed W11 cable connector J3 (26) through ammunition feed port (25) to TBOS video mixer unit connector J3 (27).
- (2) Connect W11 cable connector J3 (26) to TBOS video mixer connector J3 (27).



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**2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).**

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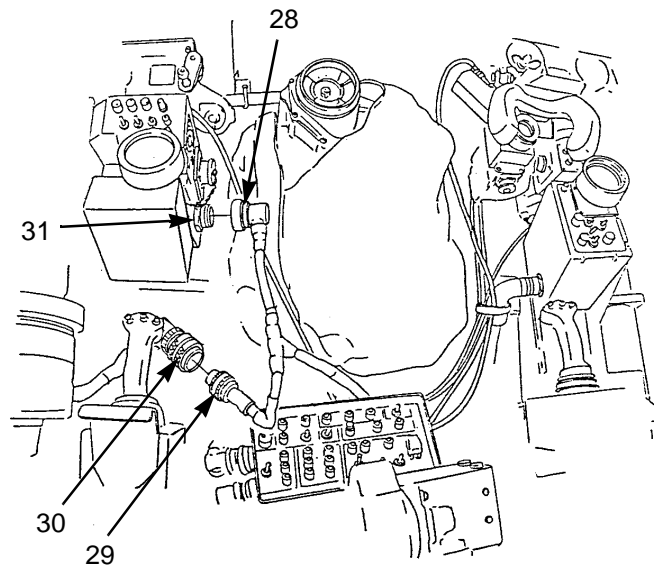
**CAUTION**

Manually elevate or depress gun so DIM36TH power cable can be disconnected without contacting side of gun. Failure to follow this caution may result in equipment damage.

(3) Disconnect gunner's DIM36TH system cable connector (30) from DIM36TH unit connector (31).

(4) Connect W11 cable connector labeled HIRE (28) to DIM36TH unit connector (31).

(5) Connect W11 cable connector labeled TO-CABLE-HIRE (29) to DIM36TH system cable connector (30).



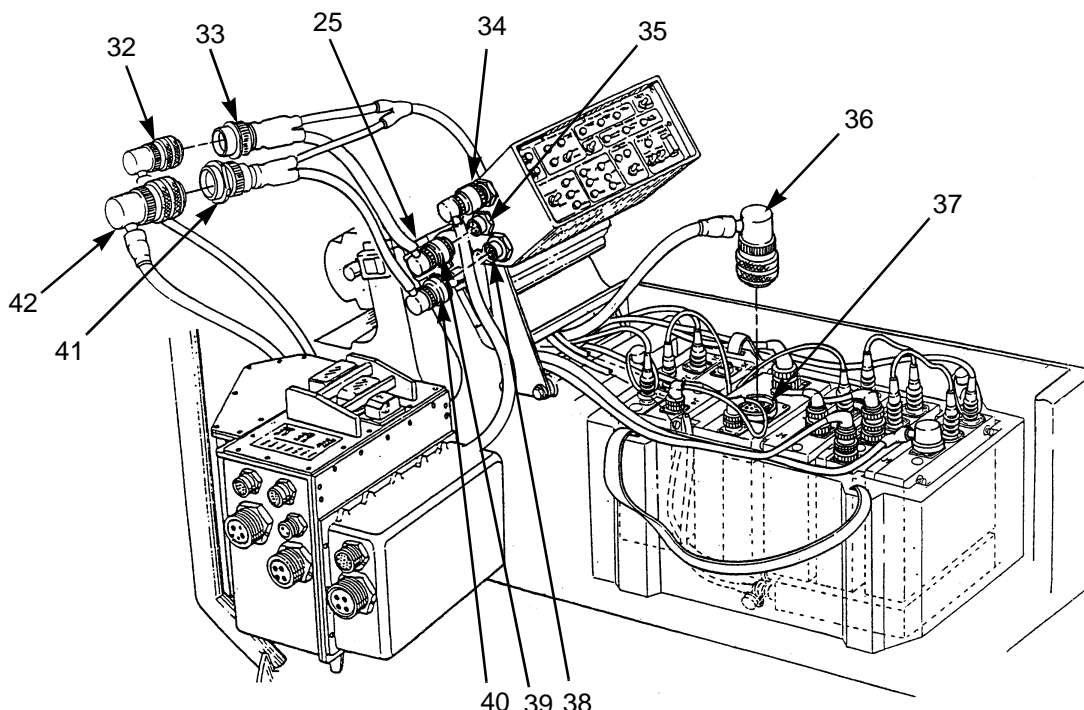
## 2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).

### f. W14 Cable Installation.

#### NOTE

**Installation/removal of CDA, PDA, and DIM36TH vehicle and PGS cables must be performed or supervised by trained personnel.**

- (1) Feed W14 cable connector J2 (36) through ammunition feed port (25) to expansion unit connector J2 (37).
- (2) Connect W14 cable connector J2 (36) to expansion unit connector J2 (37).
- (3) If necessary, disconnect CDA vehicle cable connector W107P1 (34) from CDA connector J3 (TOP).
- (4) Disconnect CDA vehicle cable connector W105P5 (32) from CDA connector J2 (CENTER) (35).
- (5) Disconnect CDA vehicle cable connector W105P4 (42) from CDA connector J1 (BOTTOM) (38).
- (6) Connect W14 connector CDA J1 (40) to CDA connector J1 (BOTTOM) (38).
- (7) Connect W14 connector CDA J2 (39) to CDA connector J2 (CENTER) (35).
- (8) If disconnected, connect CDA vehicle cable connector W107P1 (34) to CDA connector J3 (TOP).
- (9) Connect W14 connector W105P4 (41) to CDA vehicle cable connector W105P4 (42).
- (10) Connect W14 cable connector W105P5 (33) to CDA vehicle cable connector W105P5 (32).
- (11) Adjust cables so they do not interfere with gunner's knee.





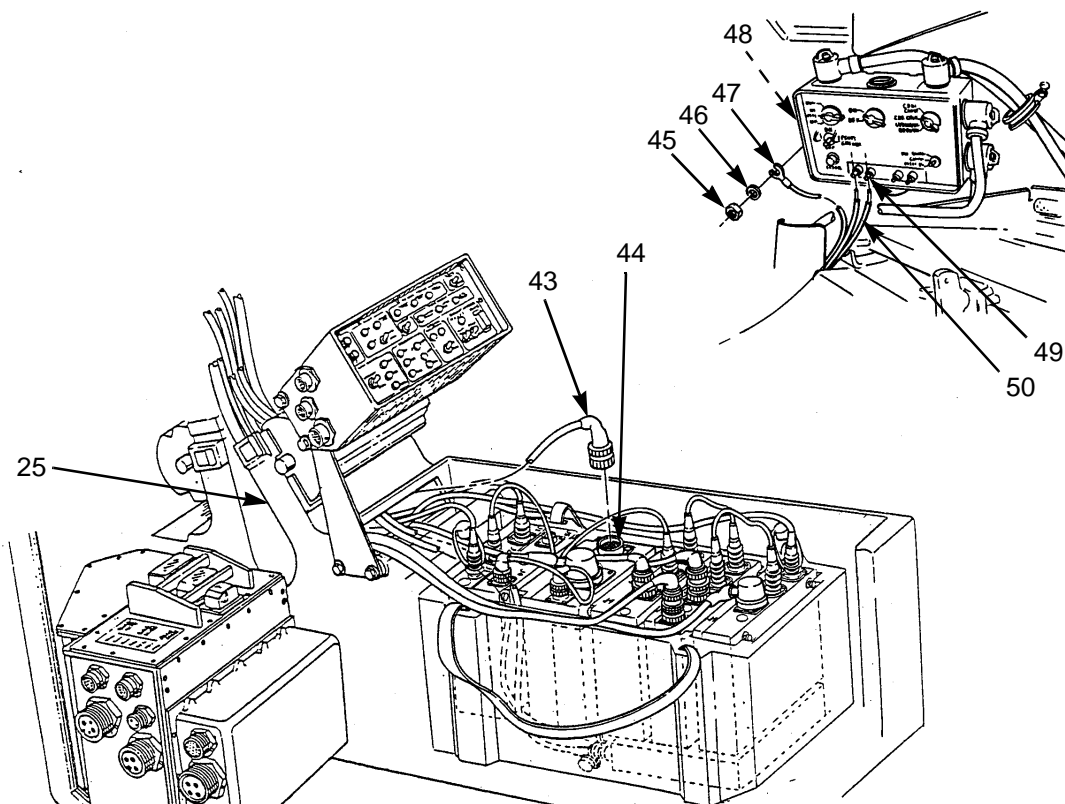
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**2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).**

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**g. W13 Cable Installation.**

- (1) Feed W13 cable connector J3 (43) through ammunition feed port (25) to expansion unit connector J3 (44).
- (2) Connect W13 cable connector J3 (43) to expansion unit connector J3 (44).
- (3) Connect W13 cable AUDIO INPUT 7162 and GRD 7162 cable leads (50) to AM 7162 amplifier terminals (49).
- (4) Connect W13 cable chassis ground lead (47) to either top left or bottom left AM 7162 mounting stud (48) with washer (46) and nut (45).

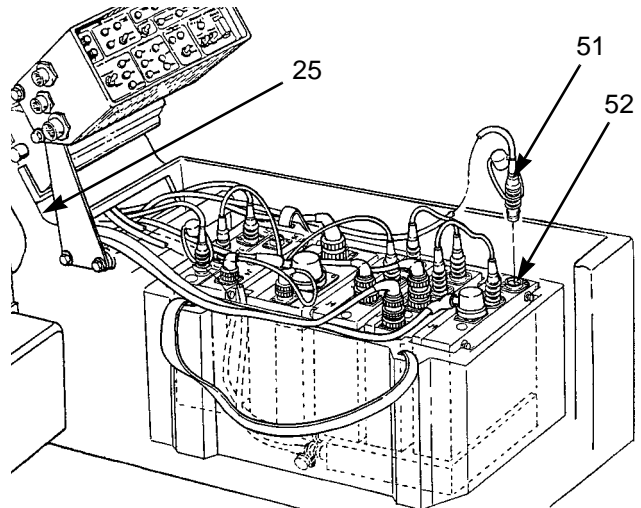


## 2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).

### h. W1 Cable Installation.

(1) Feed W1 cable connector J1 (51) through ammunition feed port (25) to TBOS video mixer connector J1 (52).

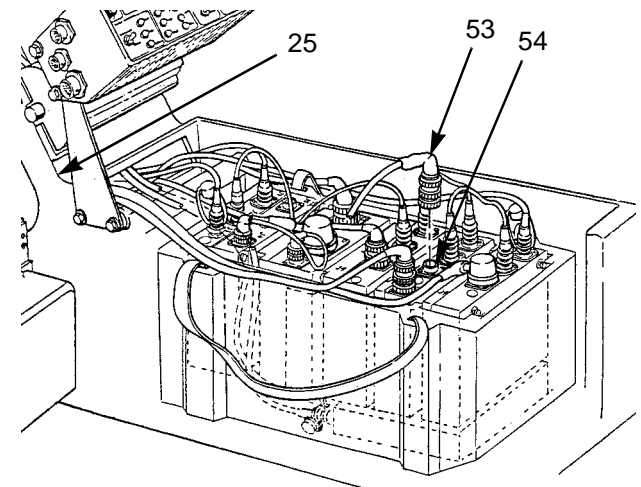
(2) Connect W1 cable connector J1 (51) to TBOS video mixer connector J1 (52).



### i. W7 Cable Installation.

(1) Feed W7 cable connector J3 (53) through ammunition feed port (25) to target computer unit connector J3 (54).

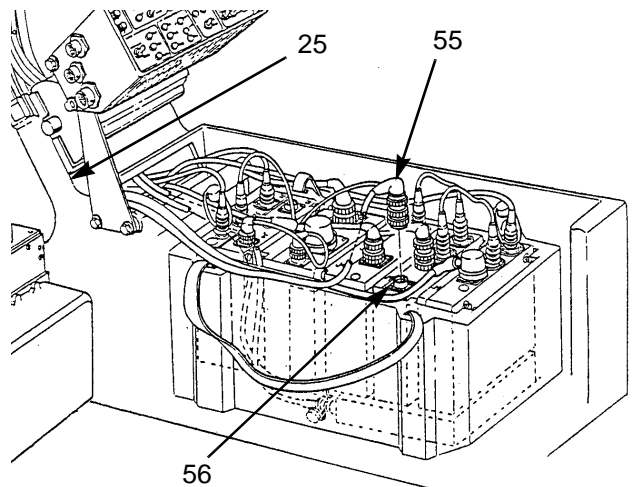
(2) Connect W7 cable connector J3 (53) to target computer unit connector J3 (54).



### j. W8 Cable Installation.

(1) Feed W8 cable connector J4 (55) through ammunition feed port (25) to target computer unit connector J4 (56).

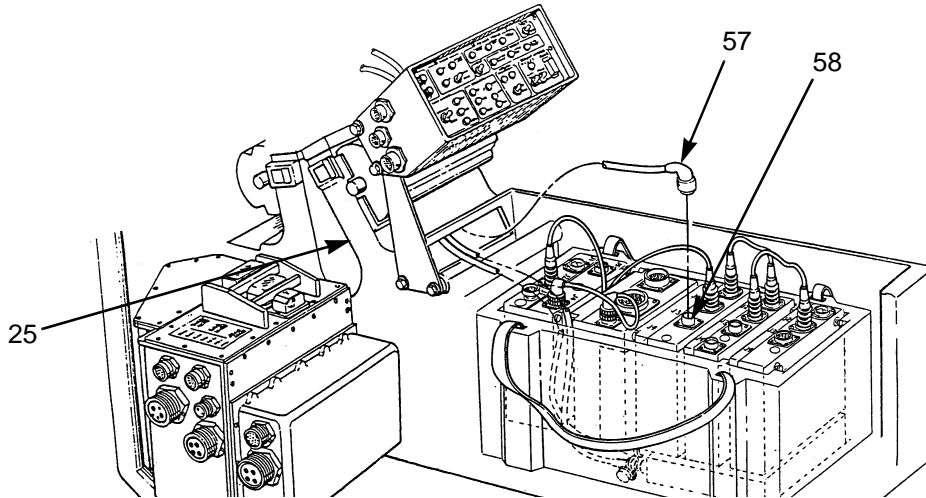
(2) Connect W8 cable connector J4 (55) to target computer unit connector J4 (56).



## 2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).

### k. RSI Antenna Cable Installation.

- (1) Feed RSI antenna cable connector J3 (57) through ammunition feed port (25) to RSI unit connector J3 (58).
- (2) Connect RSI antenna cable connector J3 (57) to RSI unit connector J3 (58).

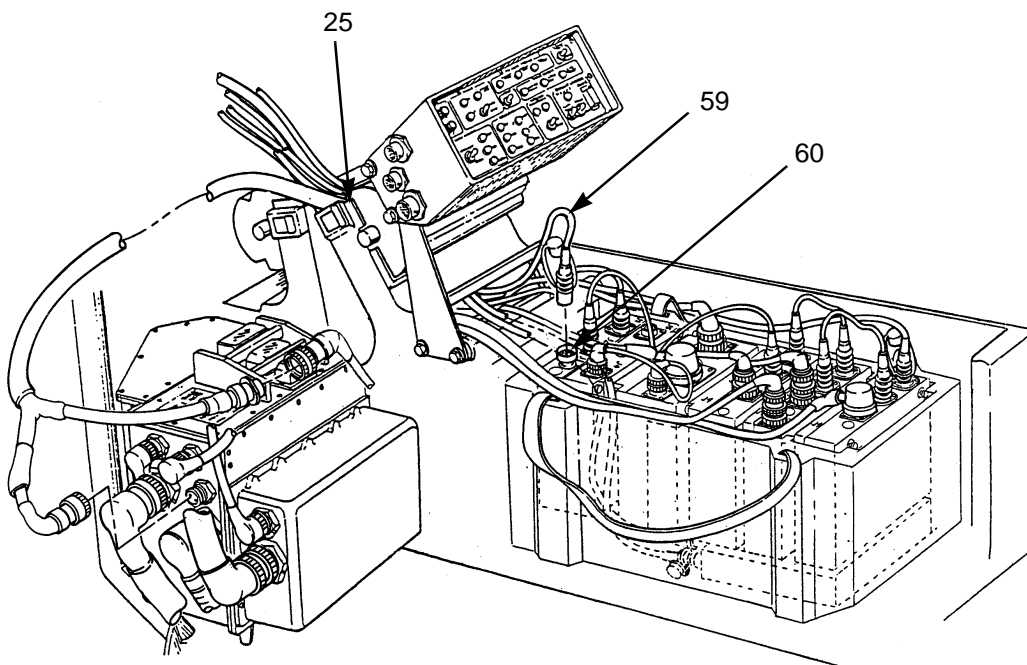


### l. W12 Cable Installation.

#### NOTE

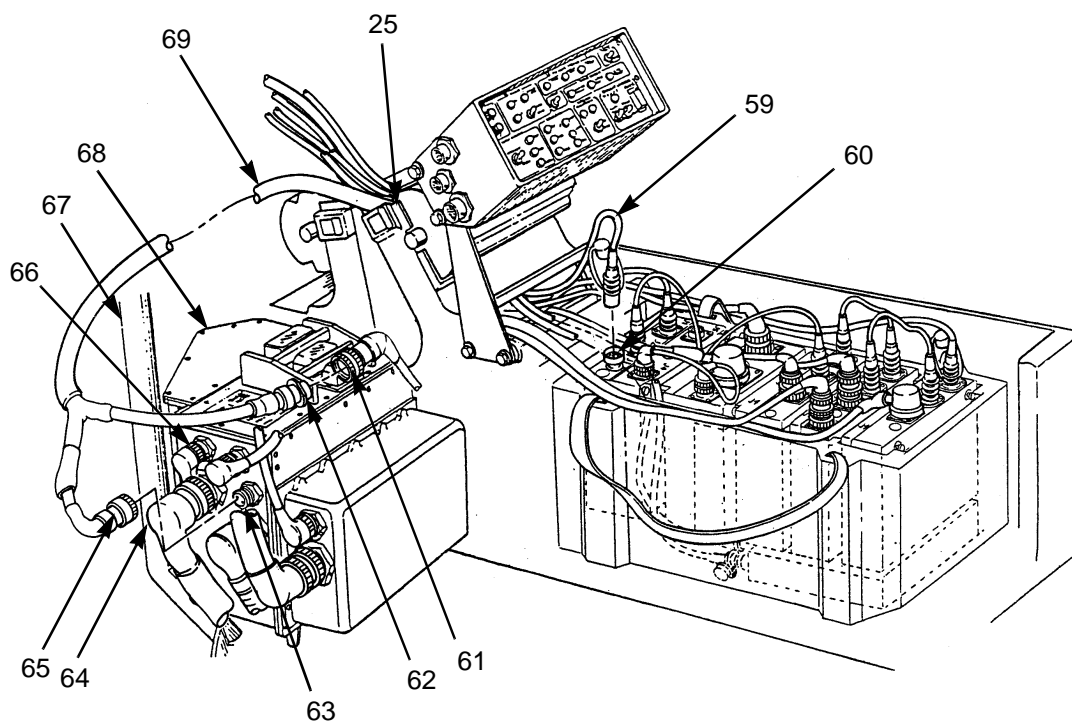
Installation/removal of CDA, PDA, and DIM36TH vehicle and PGS cables must be performed or supervised by trained personnel.

- (1) Feed W12 cable connector J3 (59) through ammunition feed port (25) to vehicle interface unit connector J3 (60).



## 2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).

- (2) Connect W12 cable connector J3 (59) to vehicle interface unit connector J3 (60).
- (3) Feed remainder of W12 cable (69) to PDA (68) positioning cable inside of turret support structure (67).
- (4) For ease of installation, disconnect PDA vehicle cable connector J4 (66).
- (5) For ease of installation, disconnect PDA vehicle cable connector J1 (64).
- (6) Disconnect PDA vehicle cable connector W106P1 (61) from PDA connector J3 (63).
- (7) Connect W12 cable connector PDA J3 (65) to PDA connector J3 (63).
- (8) Connect W12 cable connector TO-CABLE-W106P1 (62) to PDA vehicle cable connector W106P1 (61).
- (9) Connect PDA vehicle cable connector J1 (64).
- (10) Connect PDA vehicle cable connector J4 (66).



### m. Control Panel, Control Panel Bracket, and TDRS Memory Card Installation.

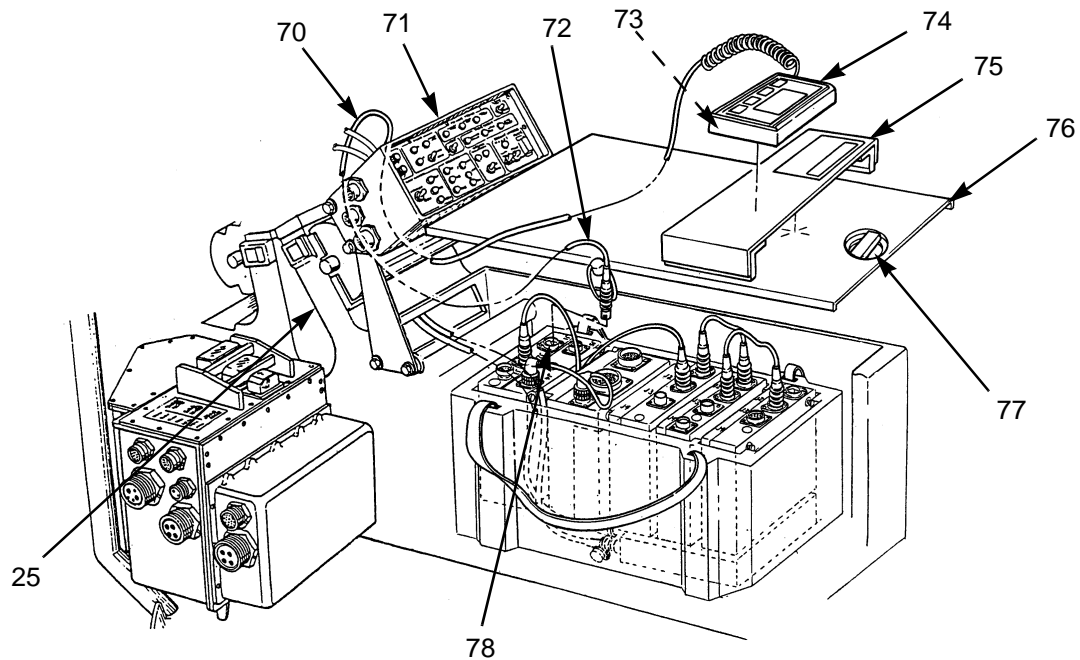
- (1) Feed control panel cable (70) up through space between CDA (71) and ammunition feed port (25) then down through ammunition feed port to vehicle interface unit connector J1 (78).
- (2) Connect control panel cable connector J1 (72) to vehicle interface unit connector J1 (78).
- (3) Ensure control panel (74) is securely fastened with magnets to control panel bracket (75).

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**2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).**

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- (4) Install control panel bracket (75) on rear of HE ammunition box lid (76) and immediately forward of lid locking knob (77).
- (5) Install TDRS memory card (73) in control panel (74) until flush with control panel.
- (6) Install HE ammunition box lid (76) with control panel (74).
- (7) Ensure control panel bracket (75) is clear of manual elevation handle and up/down movement of commander's and gunner's seats.



## 2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).

### n. Fastening of Cables.

#### WARNING

Ensure cables and components are properly installed. Improper installation can cause damage to equipment and injury to personnel.

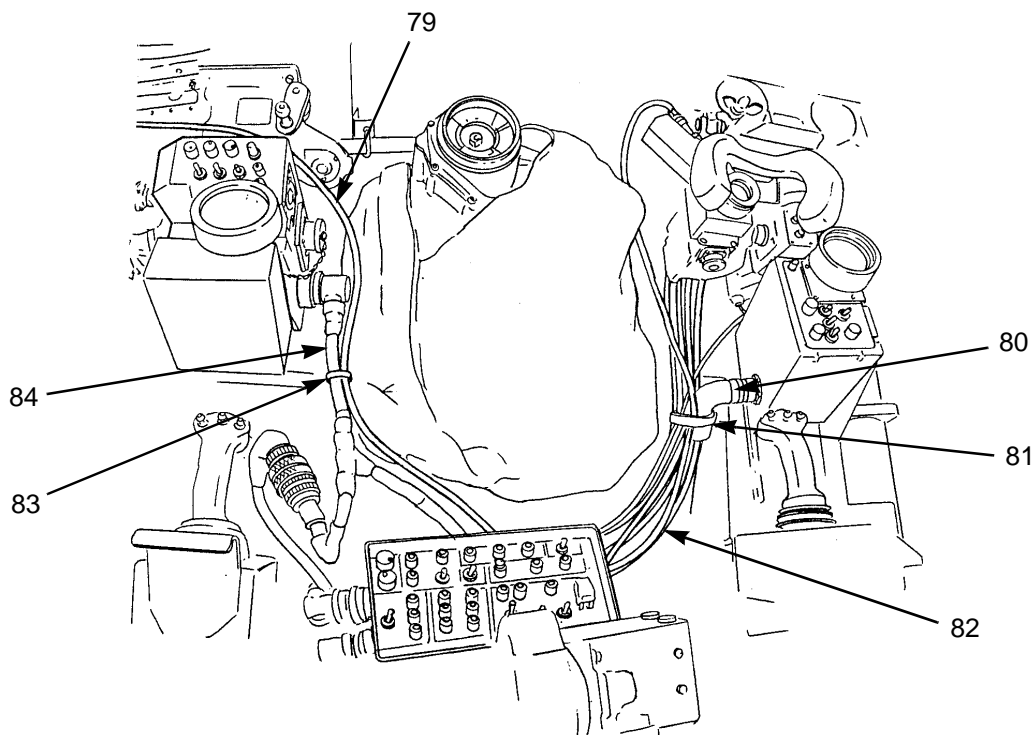
#### CAUTION

If cables are not properly routed and secured with velcro straps and magnets, they may become snagged and damaged when vehicle is operated.

#### NOTE

Perform steps 1 and 2 to secure all PGS cables.

- (1) Fasten right cable bundle (82) exiting ammunition feed port to commander's DIM36TH sight power cable (80) with velcro strap (81).
- (2) Fasten TBOS EU gunner's W9 cable (79) to W11 cable labeled HIRE (84) with velcro strap (83).



- (3) Ensure that all cable connectors are tight, properly routed, and securely fastened with velcro straps.

## 2-5. INSTALLATION OF INTERIOR COMPONENTS AND CABLES (Con't).

(4) Elevate and depress 25 mm gun and traverse turret left and right to ensure that cables are not pinched, stretched, or create a tripping hazard (see TM 08594A-10/1A).

(5) On exterior, check that hull defilade detector units clear top deck of hull. Rotate turret 360° to ensure there are no snags (see TM 08594A-10/1A).

## 2-6. TEST PROCEDURES.

### NOTE

**Either a steady light or no light on units within vehicle interface assembly indicates a malfunction.**

- a. Set MASTER SWITCH to ON, power-up turret (weapon, turret, and aux power), and DIM36TH sight.
- b. The built-in test (BIT) is automatically performed when the MASTER SWITCH is set to ON. A blinking red light on vehicle interface unit indicates 24 volts are received by the system. If an error is found, an error message will appear in the form of a pop-up screen on the control panel and a sound effect will be heard on the vehicle intercom.
- c. The error pop-up screens show two types of errors.
- d. Multiple errors will be listed in order of precedence and must be corrected in the same order.

### WARNING

**Vehicle MASTER SWITCH and turret power must be OFF before connecting or disconnecting vehicle components/cables. Failure to follow this warning may cause turret or 25 mm gun movement, resulting in injury or death to personnel.**

- e. Correct each error message in the order they appear on the control panel. After each corrective action, perform the BIT by placing the master power ON. Continue this process until all errors are corrected.
- f. If an error cannot be corrected using the information provided by the control panel, refer to operator/crew troubleshooting (see Chapter 3, Section II).

### NOTE

**Refer to paragraph 1-11 for operation of control panel.**

- g. To view or select test procedures on control panel:

- (1) Select TE and press ENTER.

SI	EL	BT	TT	DR	DH		
AL							
SU							
TE							
CF							
	TEST						

## 2-6. TEST PROCEDURES (Con't).

(2) Select EL and press ENTER. If no errors are found, "NO ERRORS" is displayed for two seconds.

(3) If one or more errors are found, use up/down arrow buttons to view error list.

SI	<b>EL</b>	BT	TT	DR	DH		
AL	ERROR POP-UP SHOWING						
SU							
<b>TE</b>							
CF							
	<b>ERROR LIST</b>						

(4) Select BT and press ENTER.

SI	EL	<b>BT</b>	TT	DR	DH		
AL	TEST IS RUNNING 40%  <b>EXAMPLE</b>						
SU							
<b>TE</b>							
CF							
	<b>BUILT-IN TEST</b>						

SI	EL	<b>BT</b>	TT	DR	DH		
AL	TEST IS RUNNING 100% TEST COMPLETE NO ERRORS						
SU							
<b>TE</b>							
CF							
	<b>BUILT-IN TEST</b>						

### NOTE

If BIT detects an error, an error pop-up screen appears.

(5) Press ESC.

SI	<b>EL</b>	BT	TT	DR	DH		
AL	NO CONNECTION (4) TRANSCIVER UNIT  <b>EXAMPLE</b>						
SU							
<b>TE</b>							
CF							
	<b>ERROR LIST</b>						

(6) Select EL and press ENTER.

(7) View error list using up/down arrow buttons. Press ESC.



## 2-6. TEST PROCEDURES (Con't).

### NOTE

If an error occurs during normal use, the message "CHECK ERROR LIST" starts flashing.

- (8) Correct errors and repeat BIT.

### NOTE

During detector tests in steps 9 through 12, ensure that PGS is not exposed to any laser pulses from transceiver units or control guns (CGUNs). If exposed to laser pulses, the detector tests indicate NOT OK.

(9) Select DR and press ENTER.  
After approximately five seconds, the results of the test are indicated.

(10) After test is complete, press ESC.

SI	EL	BT	TT	DR	DH		
AL	RDU	R/F	OK				
SU	RDU	R/R	OK				
TE	RDU	L/R	NOT OK				
CF	RDU	L/F	OK				
	DETECTOR TEST RDU						

(11) Select DH and press ENTER.  
After approximately five seconds, the results of the test are indicated.

(12) After test is complete, press ESC.

SI	EL	BT	TT	DR	DH		
AL	HDDU R/F OK						
SU	HDDU R/R OK						
TE	HDDU L/R NOT OK						
CF	HDDU L/F OK						
	DETECTOR TEST HDDU						

h. Time Totalizing Meter.

### NOTE

Time TCU is the time the system has been attached to a host vehicle with power applied. The time is provided for maintenance purposes.

(1) To view TT meter, select TT and press ENTER.

- (2) Press ESC two times.

SI	EL	BT	TT	DR	DH		
AL	TIME TU:						
SU							
TE	TIME TCU:						
CF	000120h: 46 m						
	EXAMPLE						
	TIME TOTALIZING METER						

2-7. ALIGNMENT PROCEDURES.

NOTE

- Alignment **MUST** be performed in strict accordance with instructions provided to ensure proper training results.
- Alignment can be performed at any distance between 200 and 4000 meters. For best results, select a distance approximately 1000 meters.

a. Alignment Target Placement.

- (1) Position a target panel as close to 1000 meters away from the vehicle as possible. Target panel should be placed so that 25 mm gun is over the front of the vehicle when gun is aligned with target.
- (2) Mount a retro reflector unit on the target panel.

b. Vehicle Preparation.

- (1) Set MASTER SWITCH to ON (see TM 08594A-10/2).
- (2) Place turret power ON (see TM 08594A-10/1A).
- (3) Place either gunner's or commander's DIM36TH sight ON (see TM 08594A-10/1A).
- (4) Set TURRET DRIVE LOCK to UNLOCKED position (see TM 08594A-10/1A).
- (5) Place DRIVE SELECT LEVER to POWERED position (see TM 08594A-10/1A).
- (6) Position vehicle on level ground (see TM 08594A-10/2).
- (7) Release locking handle of TBOS commander's and gunner's eyepiece unit (see paragraph 2-5). Focus sight picture in commander's and gunner's eyepiece (see TM 08594A-10/1A). Lock locking handle of TBOS commander's and gunner's eyepiece units.

c. Cant Alignment.

- (1) Select AL and press ENTER.

**SELECT:**  
**NARROW FOV**

**PRESS ENTER**

- (2) On DIM36TH sight, select NARROW FOV (see TM 08594A-10/1A).
- (3) Select CA and press ENTER.

SI	CA	LA	TG	TC	TD		
AL							
SU							
TE							
CF							
	CANT ALIGNMENT						

---

## 2-7. ALIGNMENT PROCEDURES (Con't).

---

screen. (4) Press ENTER and read pop-up

TURN TURRET  
UNTIL MAX.  
CANT ANGLE  
PRESS ENTER

screen. (5) Press ENTER and read pop-up

TURN TURRET  
1600 MILS  
LEFT OR RIGHT  
PRESS ENTER

screen. (6) Press ENTER and read pop-up

ROTATE TU  
UNTIL CANT = OK  
(CANT =  $\pm 0.5$ )  
PRESS ENTER

### NOTE

**Cant angle of transceiver unit is displayed on control panel.**

(7) Press ENTER.

(8) Rotate turret in either direction to maximum cant angle and note azimuth reading.

(9) Rotate turret 1600 MILS in either direction from maximum cant angle.

CANT TU +0.7  
  
EXAMPLE

(10) Have crewmember lower transceiver unit locking handle and slowly rotate transceiver unit until control panel displays cant angle of  $0^\circ \pm 0.5^\circ$ .

**CAUTION**

**Ensure that transceiver unit is properly LOCKED into mounting bracket by checking that transceiver unit locking handle is in raised position. Failure to perform this check may result in transceiver unit falling out of mounting bracket and becoming damaged.**

### NOTE

**Transceiver unit is properly installed when locking handle in locked position is flush with mounting bracket.**

(11) Have crewmember raise transceiver unit locking handle to locked position.

(12) Press ESC.

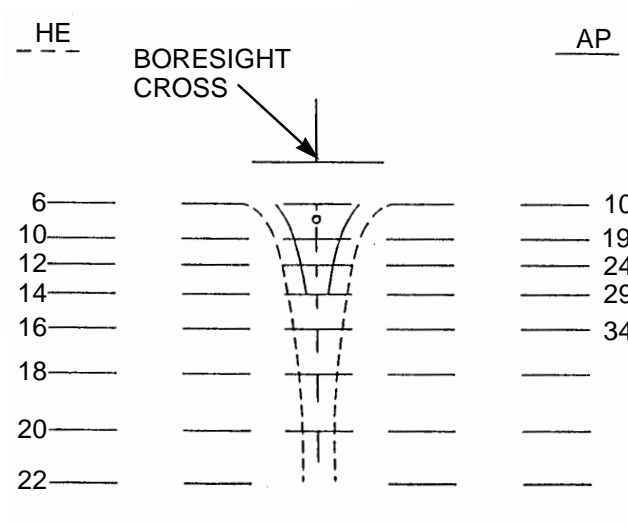
## 2-7. ALIGNMENT PROCEDURES (Con't).

### d. Laser Alignment.

- (1) Select LA and press ENTER.

SI	CA	LA	TG	TC	TD		
AL	LAY BORESIGHT						
SU	CROSS						
TE	ON RETRO						
CF	PRESS ENTER						
	LASER ALIGNMENT						

- (2) Using gunner's controls, lay boresight cross of 25 mm gun reticle on the center of the retro reflector unit, mounted on the target panel. Press ENTER.



- (3) Select R and press ENTER.

SI	LA				M	S	R
AL	→ 0.0      ↑ 0.0 mrad						
SU	R 0000 m      No 0						
TE							
CF	AIM AT RETRO <b>EXAMPLE</b>						
	RESET LASER						

## 2-7. ALIGNMENT PROCEDURES (Con't).

### NOTE

- DO NOT adjust lay of gun at any time when performing steps 4 and 5.
- Ensure that only one retro reflector unit is visible within field of view.
- The target hit deflection and range-to-target are displayed on the control panel display screen after pressing ENTER three times.

### WARNING

Transceiver unit is a laser safety Class 3A which means it is conditionally eyesafe. DO NOT view transceiver unit during training exercise with an aided eye, i.e. optics which magnify from a distance less than 25 m.

- (4) Select M and press ENTER.

SI	LA				M	S	R
AL	→	0.0	↑	0.0 mrad			
SU		R 0000 m		No 0			
TE							
CF		AIM AT RETRO					
		MEASURE LASER					

- (5) Press ENTER a minimum of three times.

SI	LA				M	S	R
AL	→	4.6	↑	9.1 mrad			
SU		R 1205 m		No 3			
TE							
CF		AIM AT RETRO					
		MEASURE LASER					

### NOTE

If SAVE is selected prior to three laser measurements, a pop-up screen appears.

TOO FEW  
MEASUREMENTS

2-7. ALIGNMENT PROCEDURES (Con't).

(6) Select S.

SI	LA				M	S	R
AL	→ 4.6      ↑ 9.1 mrad						
SU	R 1205 m      No 3						
TE							
CF	AIM AT RETRO						
	SAVE LASER						

(7) Press ENTER.

NOTE

If ESC is pressed while a pop-up screen is displayed, measurement is not saved. A pop-up screen appears.

MEASUREMENT  
NOT SAVED

(8) Press ESC.

e. TBOS Gunner Alignment.

(1) Select a target with a dark background to allow for better observation of TBOS effects.

(2) Select TG and press ENTER. A reticle pattern with alignment dot is presented in sight.

(3) Adjust focus on TBOS eye-piece unit until reticle is sharp.

SI	CA	LA	TG	TC	TD		
AL							
SU							
TE							
CF							
	TBOS GUNNER ALIGNMENT						

(4) Select R and press ENTER.

SI	TG					AL	R
AL							
SU							
TE							
CF							
	RESET TBOS						

## 2-7. ALIGNMENT PROCEDURES (Con't).

### NOTE

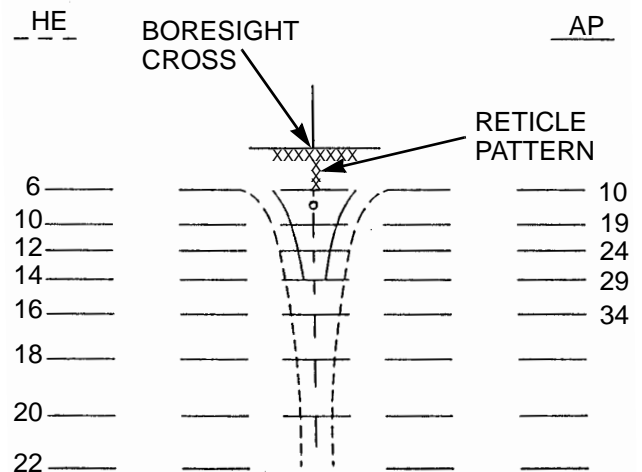
When alignment (AL) is selected, TBOS alignment steps are displayed on control panel.

(5) Select AL and press ENTER.  
Only a reticle pattern is presented in sight.

SI	TG					AL	R
AL							
SU							
TE							
CF							
	ALIGN TBOS						

(6) Using up/down arrow buttons, rotate reticle pattern until aligned with boresight cross.

SI	TG					AL	R
AL	ROTATE CROSS UNTIL ALIGNED WITH RETICLE USING ↓ ↑ ENTER TO CONTINUE						
SU							
TE							
CF							
	ROTATION						



2-7.     **ALIGNMENT PROCEDURES (Con't).**

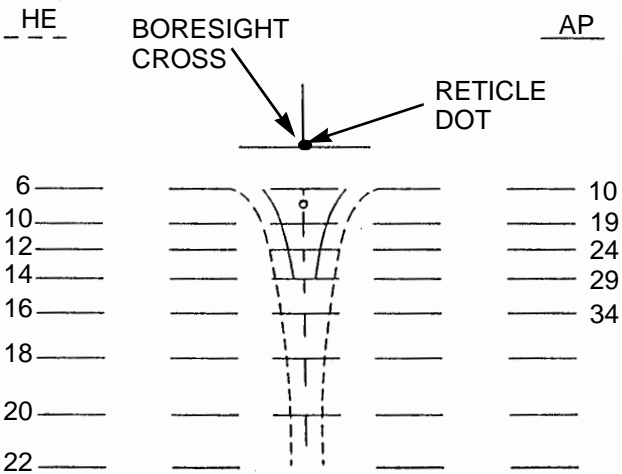
**NOTE**

Reticle pattern is properly positioned when it rests over boresight cross. Vertical line in reticle pattern **MUST** point downward.

(7)     Press ENTER to save and continue alignment.

(8)     Using up/down arrow buttons, adjust position of TBOS dot until dot is level with boresight cross.

SI	TG					AL	R
AL	ADJUST DOT UNTIL ALIGNED WITH BORESIGHT CROSS USING ↓ ↑ ENTER TO CONTINUE						
SU							
TE							
CF							
	ELEVATION						



(9)     Press ENTER to save and continue alignment.

(10)    Using left/right arrow buttons, adjust position of TBOS dot until dot is on boresight cross.

SI	TG					AL	R
AL	ADJUST DOT ONTO BORESIGHT CROSS USING   ←   → ENTER TO CONTINUE						
SU							
TE							
CF							
	AZIMUTH						



## 2-7. ALIGNMENT PROCEDURES (Con't).

- (11) Press ENTER to save.

SI	TG					AL	R
AL							
SU							
TE							
CF							
	ALIGN TBOS						

### NOTE

After ENTER is pressed, the TBOS alignment reticle is displayed. If not properly aligned with sight reticle, repeat steps 4 through 11.

- (12) Press ESC.

f. **TBOS Commander Alignment.**

(1) Select a target with a dark background to allow for better observation of TBOS effects.

(2) Select TC and press ENTER. A reticle pattern with alignment dot is presented in sight.

(3) Adjust focus on TBOS eye-piece unit until reticle is sharp.

- (4) Select R and press ENTER.

SI	CA	LA	TG	TC	TD		
AL							
SU							
TE							
CF							
	TBOS COMMANDER ALIGNMENT						

SI	TC					AL	R
AL							
SU							
TE							
CF							
	RESET TBOS						

### NOTE

When alignment (AL) is selected, TBOS alignment steps are displayed on control panel.

(5) Select AL and press ENTER. Only a reticle pattern is presented in sight.

SI	TC					AL	R
AL							
SU							
TE							
CF							
	ALIGN TBOS						

2-7. ALIGNMENT PROCEDURES (Con't).

NOTE

- Reticle pattern is properly positioned when it rests over boresight cross. Shorter vertical line in reticle pattern **MUST** point downward.
- See TBOS gunner alignment reticles for correct position of reticle pattern and dot.

(6) Using up/down arrow buttons, rotate reticle pattern until aligned with boresight cross.

SI	TC					AL	R
AL	ROTATE BORESIGHT CROSS UNTIL						
SU	ALIGNED WITH						
TE	RETICLE USING ↓ ↑						
CF	ENTER TO CONTINUE						
	ROTATION						

(7) Press ENTER to save and continue alignment.

(8) Using up/down arrow buttons, adjust position of TBOS dot until dot is level with boresight cross.

(9) Press ENTER to save and continue alignment.

SI	TC					AL	R
AL	ADJUST DOT UNTIL						
SU	ALIGNED WITH						
TE	BORESIGHT CROSS USING ↓ ↑						
CF	ENTER TO CONTINUE						
	ELEVATION						

(10) Using left/right arrow buttons, adjust position of TBOS dot until dot is on boresight cross.

SI	TC					AL	R
AL	ADJUST DOT ONTO						
SU	BORESIGHT CROSS						
TE	USING ← →						
CF	ENTER TO CONTINUE						
	AZIMUTH						

(11) Press ENTER to save.

SI	TC					AL	R
AL							
SU							
TE							
CF							
	ALIGN TBOS						

## 2-7. ALIGNMENT PROCEDURES (Con't).

### NOTE

After ENTER is pressed, the TBOS alignment dot is displayed. If not properly aligned, repeat steps 4 through 11.

(12) Press ESC.

g. **Gunner DIM36TH Alignment.**

(1) Select TD and press ENTER.

An alignment dot is presented in DIM36TH sight.

SI	CA	LA	TG	TC	TD		
AL							
SU							
TE							
CF							
	TBOS DIM36TH ALIGNMENT						

(2) Select R and press ENTER.

SI	TD					AL	R
AL							
SU							
TE							
CF							
	RESET DIM36TH						

### NOTE

When alignment (AL) is selected, DIM36TH alignment steps are displayed on control panel.

(3) Select AL and press ENTER.

Alignment dot is presented in DIM36TH sight.

SI	TD					AL	R
AL							
SU							
TE							
CF							
	ALIGN DIM36TH						

(4) Using up/down arrow buttons, adjust position of TBOS dot until dot is level with bore-sight cross (see reticle on page 2-32).

(5) Press ENTER to save and continue alignment.

SI	TD					AL	R
AL	ADJUST DOT UNTIL LEVEL WITH BORESIGHT CROSS USING ↓ ↑ ENTER TO CONTINUE						
SU							
TE							
CF							
	ELEVATION						

---

**2-7. ALIGNMENT PROCEDURES (Con't).**


---

(6) Using left/right arrow buttons, adjust position of TBOS dot until dot is on top of bore-sight cross.

SI	TD					AL	R
AL	ADJUST DOT ONTO BORESIGHT CROSS USING ← →						
SU							
TE							
CF							
	ENTER TO CONTINUE						
	AZIMUTH						

(7) Press ENTER to save.

SI	TD					AL	R
AL							
SU							
TE							
CF							
	ALIGN DIM36TH						

**NOTE**

After enter is pressed, DIM36TH alignment dot is displayed. If not properly aligned, repeat steps 3 through 7.

(8) Press ESC twice.

---

**2-8. SETUP PROCEDURES.**


---

a. **Backlight.**

(1) Select SU and press ENTER.

SI	BL	CO					
AL							
SU							
TE							
CF							
	SETUP						

## 2-8. SETUP PROCEDURES (Con't).

- (2) Select BL and press ENTER.
- (3) Press left arrow button to turn backlight ON or right arrow button to turn backlight OFF. Press ENTER.
- (4) Press ESC.

SI	BL	CO					
AL	ON OFF						
SU							
TE							
CF							
	BACKLIGHT						

### b. Contrast.

- (1) Select SU and press ENTER.

SI	BL	CO					
AL							
SU							
TE							
CF							
	SETUP						

- (2) Select CO and press ENTER.
- (3) Use left/right arrow buttons to change contrast and press ENTER.
- (4) Press ESC.

SI	BL	CO					
AL	CHANGE CONTRAST BY USING ← →						
SU							
TE							
CF							
	CONTRAST ADJUST						

## 2-9. CONTROLLER FUNCTIONS.

### NOTE

Procedures only apply when controller has enabled system using CGUN.

### a. Set Time.

#### NOTE

Time is automatically set when the global positioning system is used.

- (1) Select CF and press ENTER.

SI	TI	AT	AH	SV	DP	DA	
AL							
SU							
TE							
CF							
	CONTROLLER FUNCTIONS						

## 2-9. CONTROLLER FUNCTIONS (Con't).

- (2) Select TI and press ENTER.

SI	<b>TI</b>	AT	AH	SV	DP	DA	
AL							
SU							
TE							
<b>CF</b>							
	<b>SET TIME</b>						

### NOTE

The steps to set year (YY), month (MM), day (DD), hour (HH), and minute (MM) are the same. Setting the year is illustrated.

- (3) Press ENTER to start procedure.

SI	<b>TI</b>	AT	AH	SV	DP	DA	
AL	84-01-03      11:22:33 USE ↓ ↑ TO ADJUST ENTER TO SET TIME <b>EXAMPLE</b>						
SU							
TE							
<b>CF</b>							
	<b>SET TIME</b>						

- (4) Using up/down arrow buttons, set desired year.

- (5) Press ENTER to save year.

SI	<b>TI</b>	AT	AH	SV	DP	DA	
AL	94-01-03      11:22:33 USE ↓ ↑ TO ADJUST ENTER TO PROCEED <b>EXAMPLE</b>						
SU							
TE							
<b>CF</b>							
	<b>SET TIME</b>						

### NOTE

**Seconds are set at 0 when minutes have been entered.**

- (6) Repeat steps 3 through 5 to set month, day, hour, and minutes.  
 (7) Press ESC.

## 2-9. CONTROLLER FUNCTIONS (Con't).

### b. Ammunition Turret (AT).

#### NOTE

- The following steps are to manually upload ammo to turret ammunition boxes without use of TDRS computer unit.
- The maximum number of AP, HE, and coax rounds is set by TDRS memory card.

(1) Select AT and press ENTER.

(2) Select MW and press ENTER.

AP is displayed.

(3) Using up/down arrow buttons, increase/decrease number of rounds. Press ENTER.

SI	AT					MW	CO
AL	AP 29   <b>EXAMPLE</b>						
SU							
TE							
CF							
	MAIN WEAPON						

(4) HE is displayed. Using up/down arrow buttons, increase/decrease number of rounds. Press ENTER.

SI	AT					MW	CO
AL	HE 20   <b>EXAMPLE</b>						
SU							
TE							
CF							
	MAIN WEAPON						

(5) Select CO and press ENTER.  
Coax is displayed.

(6) Using up/down arrow buttons, increase/decrease number of rounds. Press ENTER.

SI	AT					MW	CO
AL	7.62 97   <b>EXAMPLE</b>						
SU							
TE							
CF							
	COAX						

## 2-9. CONTROLLER FUNCTIONS (Con't).

### c. Ammunition Hull (AH).

#### NOTE

- The following steps are to manually upload ammo to hull without use of TDRS computer unit.
- The maximum number of AP, HE, and coax rounds is set by TDRS memory card.

(1) Select AH and press ENTER.

(2) Select MW and press ENTER.

AP is displayed.

(3) Using up/down arrow buttons, increase/decrease number of rounds. Press ENTER.

SI	AH					MW	CO
AL	AP 20   <b>EXAMPLE</b>						
SU							
TE							
CF							
	MAIN WEAPON						

(4) HE is displayed. Using up/down arrows, increase/decrease number of rounds. Press ENTER.

SI	AH					MW	CO
AL	HE 25   <b>EXAMPLE</b>						
SU							
TE							
CF							
	MAIN WEAPON						

(5) Select CO and press ENTER.

SI	AH					MW	CO
AL	7.62 150   <b>EXAMPLE</b>						
SU							
TE							
CF							
	COAX						

(6) Using up/down arrow buttons, increase/decrease number of rounds. Press ENTER.



## 2-9. CONTROLLER FUNCTIONS (Con't).

### d. Software Versions.

#### NOTE

The software version menu allows support maintenance to view the software within units of the PGS.

- (1) Select SV and press ENTER.

SI	TI	AT	AH	<b>SV</b>	DP	DA	
AL							
SU							
TE							
<b>CF</b>							
	SOFTWARE VERSIONS						

- (2) Use up/down arrow buttons to cycle between system units to view software versions.

- (3) Press ESC.

SI	TI	AT	AH	<b>SV</b>	DP	DA	
AL	CP						
SU							
TE							
<b>CF</b>							
	8848 817-102 00						
	USE ↓ ↑ TO CHANGE						
	SOFTWARE VERSIONS						

### e. Display Position.

- (1) Select CF and press ENTER.

- (2) Select DP and press ENTER to view current vehicle position by latitude and longitude.

- (3) Press ESC.

SI	TI	AT	AH	SV	<b>DP</b>	DA	
AL	MODE: NAVIGATE						
SU							
TE							
<b>CF</b>							
	LAT:						
	LONG:						
	DISPLAY POSITION						

### f. Display Attributes.

This function exists for trained Contractor Logistic Support (CLS) personnel only and cannot be used by the crew.

